

REMARKS/ARGUMENTS

Original claims 1-17 remain in the application.

Claims 18-20 were withdrawn in response to the notice of Restriction dated April 4, 2004.

Claims 21-24 were added in the previous Office Action response.

Claims 1-17 and 21-24 have been rejected.

Claims 1-15 have been rejected under 35 U.S.C. 103 (a), as being unpatentable over Brown (US 6,825,435) in view of Giannopoulos (US 6,400,127). The Examiner has cited Brown as the relevant art to be modified in view of other cited art in his 35 U.S.C. 103 obviousness rejections of all claims in this application. Following the guidelines set forth in M.P.E.P. 706.02 V., 706.02(a), 706.02(a) I, 706.02(a) II A., 706.02(a) II B., 706.02(f), 706.02(f) I. and 706.02(f) II, the effective date of Brown is March 12, 2002, the date on which the provisional application was filed. The present application was filed on January 28, 2002, six weeks prior to Brown. Therefore, Brown is not a legitimate prior art reference. Further, according to M.P.E.P. 706.02(j), three basic criteria must be met for a *prima facie* obviousness rejection of claims under 35 U.S.C. §103(a). First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant's disclosure. Further, M.P.E.P 2143.03 states "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any

claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)."

With respect to independent claim 1 and dependent claim 2, the Examiner has suggested that Brown teaches:

"a controller (5) for monitoring a component of DC power, evaluating said monitored component and providing an output signal in response to said evaluation of said monitored component;

an output switch operating in response to said output signal for selectively providing said DC power and a constant average current to an electrical device connected electrically in series with said DC power and said output switch (8).

Brown does not disclose;

a full-wave bridge rectifier providing a rectified DC power output,

a micro-controller for monitoring a component of said rectified DC power."

Applicants agree that Brown does not teach a full-wave rectifier, but Brown does teach that a battery is his preferred source of power over other sources, such as commercial AC or mid-frequency DC that require transformers (Col. 1, lines 20-33). Since Brown teaches a battery, his controller can not monitor a component of the rectified DC power provided by a full-wave rectifier, as required in claim 1. Further, independent claim 1 specifically requires that the rectified DC power be provided to an electrical device (load) at a constant average current. Brown does not teach or suggest that power from his battery will be provided to the weld gun at a constant average current. The Examiner has further suggested that Giannopoulos teaches a full-wave bridge rectifier (612) providing a rectified DC power output and a micro-controller (202) for monitoring and controlling the DC output (V_o). While Applicants agree that Giannopoulos teaches a full-wave bridge and monitors the DC output voltage (V_o), he also teaches in Col. 6, lines 30-39, that " V_o , is representative of the output voltage of power supply 100". Therefore, Giannopolos can not monitor the actual rectified DC

power as defined in claim 1. The Examiner has suggested that the motivation for combining Brown and Giannopoulos would be to "eliminate the need to replace the battery and the micro-controller (processor) providing control flexibility for accommodating different voltage requirements." Brown indicates that his battery provides a system that "allows flexibility and precise control of the weld power supplied, while avoiding the significant cost and weight associated with transformers and capacitors used in the prior art" (Col. 2, lines 9-13). Neither Brown nor Giannopoulos address any issues of supply voltage problems (voltage sag). Therefore, there is no expectation that a combination of Brown and Giannopoulos would succeed at providing a constant current to a load during a voltage sag in the utility power. Finally, the combination of Brown and Giannopoulos does not teach or suggest all of the limitations of claim 1. In summary, Brown is not applicable as a prior art reference at the time this application was filed because it had not been published. Furthermore, the combination of Brown and Giannopoulos, as suggested by the Examiner, does not meet any of the three requirements for an obviousness rejection under 35 U.S.C. 103(a) as set forth in M.P.E.P. 706.02(j). Therefore, claim 1 as filed is clearly patentable over the cited art. Claim 2 is dependent from claim 1, and, according to M.P.E.P. 2143.03, "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)." Therefore, dependent claim 2 also is clearly patentable over the cited art.

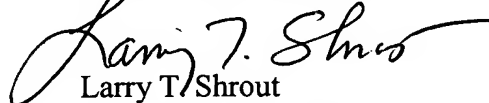
The Examiner's obviousness rejection under 35 U.S.C. 103(a) of claims 3-6 are based on the combination of Brown and Giannopoulos as set forth in the rejection of claim 1, and further in view of Garces (US 5,450,306). Therefore, the basis of these rejections, the combination of Brown and Giannopoulos, is not valid for the reasons discussed above with respect to claim 1. With respect to claims 3-6, Applicants agree that Garces teaches a closed loop PWM modulator inverter with volt-seconds feedback control, it is well known in the electrical industry that inverters are used to convert DC power into AC power. The Examiner has indicated in his reason for motivation, Garces teaches an AC output voltage. The claims of the present application specifically define a DC output voltage. Further, Garces does not teach or suggest that a "monitored component is evaluated with respect to a setpoint measured in volt-seconds" as defined in claim 3.

Garces does not teach or suggest that a constant average current should be applied to an electrical device (load) by applying constant volt-seconds to the electrical device, as defined in claim 4. Garces also does not specifically teach or suggest that monitoring, evaluating and providing an output signal are concurrent operations, as defined in claim 5. The Examiner has suggested that motivation for the combination of Brown, Giannopolos and Garces "would be to regulate the AC voltage output of switch (8)." Applicants must assume that the Examiner is referring to Brown's switch 8, which has a DC output not an AC output. The Examiner's suggested combination of Brown, Giannopolos and Garces, does not meet any of the three requirements for an obviousness rejection under 35 U.S.C. 103(a) as set forth in M.P.E.P 706.02(j). Therefore, the claims as filed are clearly patentable over the art cited by the Examiner.

With respect to the Examiner's obviousness rejection under 35 U.S.C. 103(a) of claims 7-24, the Examiner has suggested a combination of Brown, Giannopolos, Garces and Perreira (WO 95/29498), wherein Perreira teaches a DC actuator control circuit with voltage source sag compensation. The applicants agree that Perreira does teach a circuit with voltage source sag compensation. However, as discussed above with respect to claims 3-6, the Examiner's suggested combination of Brown, Giannopolos and Garces does not teach all of the elements of claims 7-24 except for a sag compensation circuit. The Examiner has indicated that it would have been obvious to one skilled in the art to provide an open loop voltage sag compensated circuit and that motivation for the combination would be to supply a controlled voltage to drive an inductive load. Garces specifically teaches a closed loop circuit and none of Brown, Giannopolos or Perreira teach or suggest that an open loop system would be desirable. Therefore, there is no teaching or suggestion in any of the cited art for the combination as proposed by the Examiner. The Examiner's suggested combination of Brown, Giannopolos, Garces and Perreira does not meet any of the three requirements for an obviousness rejection under 35 U.S.C. 103(a) as set forth in M.P.E.P 706.02(j). Therefore, the claims as filed are clearly patentable over the art cited by the Examiner.

In reply to the Office Action dated February 18, 2005, the rejections set forth by the Examiner have been carefully considered, and arguments have been presented herein to overcome the Examiner's rejections. Applicants believe all pending claims are in condition for allowance and respectfully request a favorable reconsideration and allowance of this Application.

Respectfully submitted,


Larry T. Shrout
Registration No. 35,357

SQUARE D COMPANY
P.O. Box 27446
Raleigh, North Carolina 27611-7446
Telephone: 919/266-8625
Facsimile: 919/266-8397